



Executive Summary

MoveAZ Plan

prepared for

Arizona Department of Transportation

prepared by

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with

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September 2004

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The Arizona Long-Range Transportation Plan, *MoveAZ*, provides planning guidance for the Arizona Department of Transportation (ADOT) for 20 years. *MoveAZ* builds on numerous planning studies conducted by ADOT and fits within a larger set of activities used by the agency to identify transportation needs, develop solutions, and deliver specific projects to address these solutions.

MoveAZ is a unique planning process for ADOT, providing the department with policy directions, analytical tools, and performance evaluations of specific capital transportation projects. *MoveAZ* helps ADOT address the many transportation challenges that Arizona will face over the next 20 years by providing the department with tools to help evaluate and prioritize solutions.

This executive summary provides an overview of *MoveAZ*. It covers the three phases of the plan, including the development of a strategic direction; the application of performance-based analytics to evaluate actual transportation projects; and the coordination with other agencies, transportation stakeholders, and the public. The following sections describe each of the nine chapters of the plan. Each of these chapters is supported, in turn, by technical appendices that provide detailed information about every aspect of *MoveAZ*. Table ES.1 provides an overview of the nine chapters and their links to the technical appendices.

The executive summary covers:

- The development of the strategic direction;
- Coordination with the general public, transportation stakeholders, ADOT, and other public transportation planning agencies;
- The development and implementation of a performance-based planning process;
- The analysis of Arizona's transportation modes, including highway, rail, transit, aviation, and bicycle/pedestrian modes; and
- Connections between planning and programming.

Table ES.1 MoveAZ Plan Chapters and Appendices

Document Chapter	Supporting Technical Appendices
Chapter 1. Guiding Principles – Strategic Direction	A. Phase I Summary Report B. Issues Papers
Chapter 2. Coordination and Public Partnering	C. Public Partnering
Chapter 3. Policy Directions	A. Phase I Summary Report C. Public Partnering
Chapter 4. Performance Based Analysis Process	D. Performance Factors and Measures F. Project Process Evaluation
Chapter 5. Base and Future Performance	D. Performance Factors and Measures E. Demand and System Performance
Chapter 6. Project Evaluations	D. Performance Factors and Measures F. Project Process Evaluation
Chapter 7. Transportation Modes; and Chapter 8. Goods Movement	A. Phase I Summary Report E. Demand and System Performance F. Project Process Evaluation G. Goods Movement in Arizona
Chapter 9. Implementation	

■ ES.1 Strategic Direction

The strategic direction is the foundation for the MoveAZ Plan, providing a base on which all elements of the plan are built. It was based on a thorough review of transportation issues in Arizona, as well as a review of other issues that impact the transportation system, including population growth, economic change, and increased security concerns. The strategic direction is linked to all stages of the planning process and connected to previous planning efforts conducted by ADOT, as well as by other state, regional, and local agencies.

The elements of the strategic direction include a mission statement and long-range goals and objectives. The mission statement, shown in Figure ES.1, is a brief description of the desired future for transportation in Arizona.

Figure ES.1 MoveAZ Mission Statement

To support Arizona's quality of life, the MoveAZ Plan will provide a safe, reliable, and efficient transportation system for people and goods that strengthens our economic vitality; assures access to services and recreational opportunities; preserves the beauty and health of our natural environment; and blends into our urban and rural landscapes.

To achieve these ends, the Move AZ Plan will:

- *Be fiscally responsible;*
- *Provide citizens with transportation choices;*
- *Emphasize accountability;*
- *Be responsive to change;*
- *Harmonize with Arizona's proud heritage and unique diversity;*
- *Encourage coordination of transportation and land use planning at the state, regional, and local level; and*
- *Address air, transit, rail, highway, bicycle, and pedestrian travel.*

The mission statement provides a guide to transportation planning in Arizona. From this statement, five more specific planning goals were developed that formed the basis of the strategic direction:

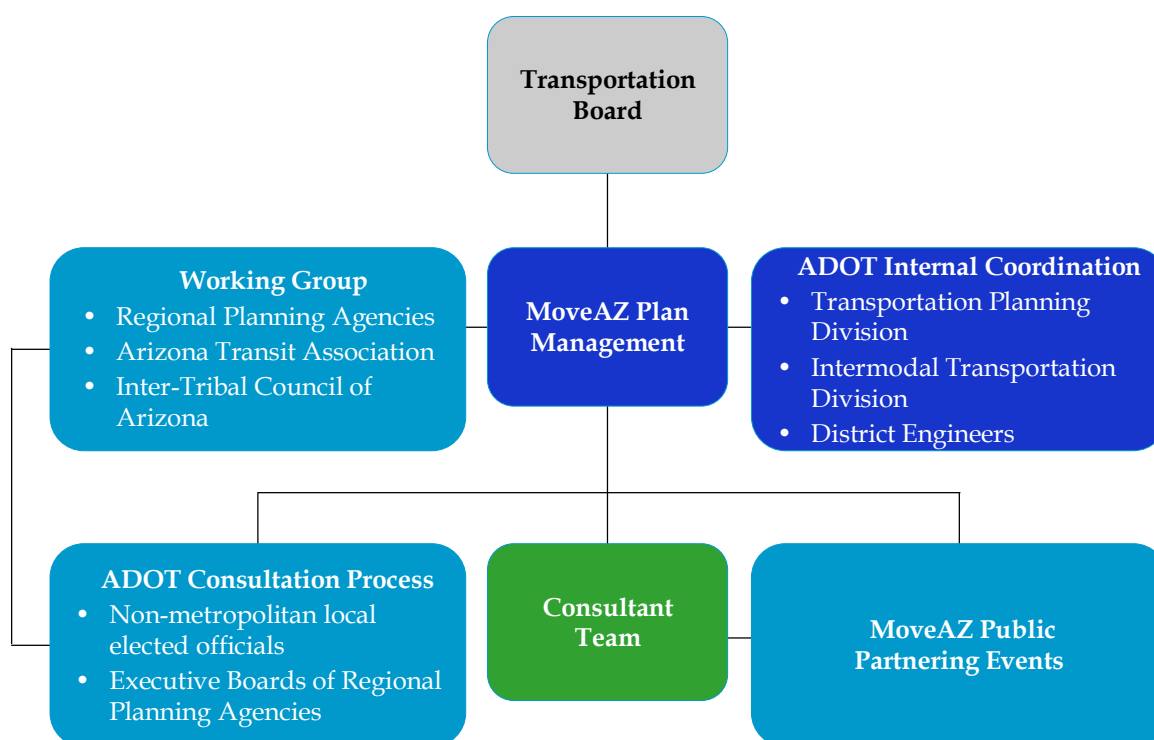
1. **Access and mobility** – A reliable and accessible multimodal transportation system that provides for the efficient mobility of people and goods throughout the State;
2. **Economic vitality** – A multimodal transportation system that improves Arizona's economic competitiveness and provides access to economic opportunities for all Arizonans;
3. **Safety** – Provide safe transportation for people and goods;
4. **Stewardship** – A balanced, cost-effective approach that combines preservation with necessary expansions and coordinates with local and regional transportation and land use planning; and
5. **Environmental sensitivity** – A transportation system that enhances Arizona's natural and cultural environment.

From these goals, even more detailed long-range objectives were identified, describing specific means to achieve the long-range goals. These goals and objectives were carried through the entire MoveAZ process, providing a basis for performance factors and measures that were used to evaluate the expected benefits of specific transportation projects.

■ ES.2 Coordination

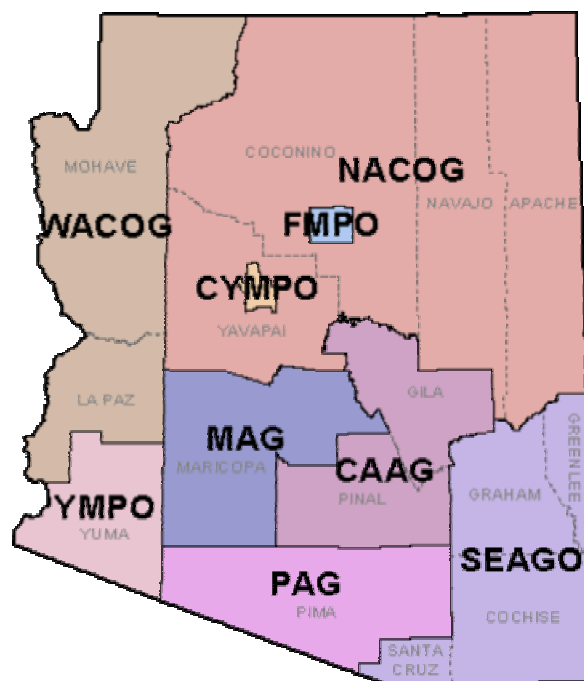
One important goal of the MoveAZ plan was to develop a thorough coordination process that provided opportunities for other transportation agencies, stakeholder groups, and the general public to participate in the planning process. The overall coordination process is diagrammed in Figure ES.2, including efforts to coordinate with internal ADOT staff, other external transportation planning agencies and groups, transportation stakeholders, and the public.

Figure ES.2 MoveAZ Coordination Process



- **External coordination** was conducted primarily through the Working Group, composed of representatives of each of the regional planning agencies in the State (Figure ES.3), the Arizona Transit Association, and the Inter-Tribal Council of Arizona. This group reviewed all products developed for MoveAZ and provided direction for the plan.
- **Internal coordination** occurred through two bodies – a steering committee and a continuity team. The steering committee, comprised of Transportation Planning Division (TPD) staff representing planning, programming, air quality, data and asset management, and each of TPD’s regional planners, provided key planning data and analytical resources to the consultant team. The Continuity Team ensured continuity between the MoveAZ planning process and internal department policy and practice. This body included the ADOT Deputy Director, the State Engineer, a District Engineer, and other staff from ADOT’s Intermodal Transportation Division. In addition, TPD staff made several presentations to ADOT senior management and the Transportation Board to keep them up-to-date on the development of the plan.
- **Public partnering** took place through a concerted public involvement process. Fifty public meetings were held across three phases, starting in the fall of 2002 and completing in the spring of 2004. The meetings included focus groups, regional forums, and open houses; and were designed to provide information to and solicit feedback from both the general public and stakeholders. These meetings are described in greater detail below.

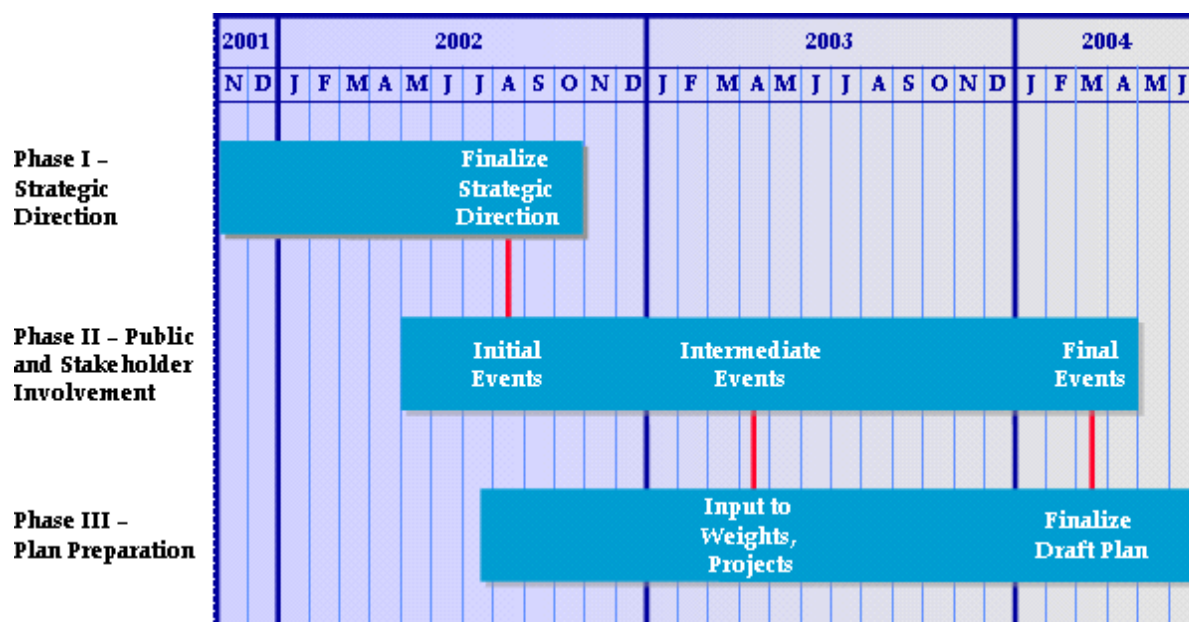
Figure ES.3 Regional Planning Agencies in Arizona



Public Partnering

MoveAZ included three rounds of partnering events designed to help ADOT build stronger relationships with key public and stakeholder groups. Each round provided specific connections to the development of the strategic direction and performance-based analysis process. Figure ES.4 indicates the connections between public involvement and the other phases of the MoveAZ plan.

Figure ES.4 Connections Between Public Partnering and the MoveAZ Plan



The goals of the three rounds of public partnering events were as follows:

1. The **initial partnering phase** of public involvement provided public input to confirm and refine the strategic direction, and to help prioritize the long-range goals and objectives developed during Phase I. In addition, ADOT gained a greater understanding of the transportation issues facing Arizona through the concerns and suggestions presented by stakeholders and the general public.
2. The **intermediate partnering phase** was used to evaluate the acceptability of policies and strategies developed in response to issues, concerns, and ideas expressed during the initial partnering phase and as a result of technical analysis completed for the plan.
3. The **final partnering phase** consisted of 20 open houses held across the State. These events presented material from the draft MoveAZ Plan to the public. From the strategic direction through the analysis of projects, participants had an opportunity to

review information about the plan through display boards, copies of MoveAZ documents, and informal discussions with ADOT representatives.

Figure ES.5 identifies the cities and towns visited during MoveAZ as part of the public involvement process. In addition to these public events, MoveAZ included ongoing communication through newsletters, mailings, and a web site.

Figure ES.5 MoveAZ Public Event Locations



■ ES.3 Performance-Based Planning

The MoveAZ Plan is performance-based, providing ADOT with tools to help decision-makers select transportation projects to build in the future. The plan provides a process to evaluate the long-term impacts of capital projects that grows logically from the strategic

direction. The long-range goals and objectives developed as a part of the strategic direction were connected to a set of seven performance factors that provide one-word descriptions (such as mobility or safety) that capture the spirit of one or more of the goals. Using these factors as a framework, performance measures were selected that capture the spirit of the specific long-range objectives. Table ES.3 lists the performance factors and measures used to support the MoveAZ plan. Performance-based planning and the selection of performance measures are described in Chapter 4 of the final MoveAZ plan.

Table ES.3 MoveAZ Performance Factors and Measures

Performance Factor	Performance Measures
Mobility and economic competitiveness	<ul style="list-style-type: none"> • Improvement in vehicle-to-capacity (V/C) ratio (weighted average by Person Miles Traveled) • Reduction in hours of delay
Connectivity	<ul style="list-style-type: none"> • Ability to pass in major two-lane corridors • Travel time improvement on ADOT high-priority corridors
Safety	<ul style="list-style-type: none"> • Improvement in crash rate (crashes per 100 million Vehicle Miles Traveled) • Reduction in injuries
Preservation	<ul style="list-style-type: none"> • Reconstruction for older roads
Reliability	<ul style="list-style-type: none"> • Reduction in hours of incident-related delay
Accessibility	<ul style="list-style-type: none"> • Improvement in bike suitability (from bicycle/pedestrian plan) • Added bus turnouts
Resource conservation	<ul style="list-style-type: none"> • Reduction in mobile source emissions • Reduction in fuel consumption • Added sound walls • Project consistency with local plans

At the core of the MoveAZ Plan evaluation process is an analysis of the system performance impacts of major capital projects on the state transportation system. The primary goal of this process is to guide, assess, and prioritize long-range transportation investments. The steps of this analysis process include:

- Identifying potential projects on the state transportation system;
- Calculating performance on each measure and factor for each of these projects; and
- Weighting performance factors to reflect the greater value attached to some factors.

Projects were identified from several sources, including Corridor Profile studies and Small Area Transportation Plans that ADOT has conducted since the 1994 long-range plan; the Governor’s Transportation Vision 21 Task Force; regional and local planning efforts; and others. The individual elements of these plans (such as highway widenings, new interchanges, shoulder widenings, and other projects) were grouped into project bundles for analysis. The purpose of using bundles is to provide consistent corridor-level projects that can be analyzed over the timeframe of the MoveAZ Plan.

Each of the bundles was evaluated using the measures described above. Performance results were designed to show the improvement that a given project would provide over a base scenario for the year 2025. This base scenario included all the projects that ADOT has already committed to through the most recent *Five-Year Transportation Facilities Construction Program*. To develop consistency in the measures, raw scores on each measure were converted into a normalized score between zero and 10 points. A zero score indicated that a given project bundle did nothing to improve a particular measure. The remaining points were assigned to project bundles relative to the raw scores of all project bundles analyzed for MoveAZ.

Project bundles received a final score on each performance factor as a function of their score on one or more performance measures. Similar to the measures, each of the performance factors also used a 10-point scale. The reliability factor had only one measure, so the factor score was the same as the measure score. For all other factors, multiple measures contributed to the factor score. For most factors, the final score was calculated as the average of the measures making up that score, though there were some exceptions. Chapters 4 and 6 of the final MoveAZ plan describe the project evaluation process.

Finally, the process included the development of performance factor weights. These weights indicated the relative priority of performance factors. Though each factor was important, certain factors were more closely connected to the issues and concerns raised in public involvement sessions, previous planning studies, and by ADOT’s advisory bodies. Three descriptive weights were selected to describe the relative priorities of the factors:

1. **Enhance** was used for factors with the highest priority for ADOT. These are factors that ADOT should focus on to improve system performance.
2. **Sustain** was used for factors for which ADOT should try to maintain current performance levels.
3. **Neutral** was used for all other factors. These factors represent issues that are important, but somewhat less so than other factors.

Table ES.4 lists descriptive and numeric weights used to support MoveAZ. Chapter 4 of the final MoveAZ plan provides additional information on the weighting process.

Table ES.4 Performance Factors Weights

Performance Factor	Descriptive Weight	Weight
Mobility	Enhance	1.4
Reliability	Neutral	1.0
Connectivity	Neutral	1.0
Accessibility	Sustain	1.2
Safety	Enhance	1.4
Preservation	Sustain	1.2
Resource conservation	Neutral	1.0

Performance Evaluation Results

Performance evaluations were conducted for over 100 potential projects bundles. The results generated by this analysis were organized by funding scenario and region. MoveAZ follows current Board policy by dividing funding and conducting performance analysis independently for three major regions of the State: 1) Maricopa County, 2) Pima County, and 3) the 13 other counties. In addition, MoveAZ used three investment scenarios based upon estimates of state and Federal funds available to Arizona, as determined by ADOT Financial Management Services:

1. **Constrained** – A projection of currently available funding sources through the year 2025;
2. **Additional revenues** – An increase above the constrained scenario based on a reasonable increase in revenues that could be derived from Federal and/or state sources; and
3. **Unconstrained** – No financial constraints, including all projects that address specific needs on the state highway transportation system, as identified in previous planning processes.

Table ES.5 presents the total funding available to each region for the constrained and additional revenues scenarios. The scenarios described here include funding for major capital projects only. Funding for ADOT subprograms (such as pavement maintenance, safety, and others) are provided through existing systems used by each subprogram to identify projects. The results of the project evaluations are presented here by three groups of roadways – interstates, other roads on the National Highway System (NHS), and other roads off the NHS. These three classifications are used because many Federal programs explicitly require states to use funds on either interstates or the NHS.

Table ES.5 Funding for Major Projects by Scenario and Region

County	Constrained (\$M)	Additional Revenue (\$M)
Maricopa	2,830	626
Pima	870	192
13 Other Counties	1,750	387
Total	5,450	1,205

Figures ES.6 presents the locations of interstate projects in the 13 other counties.

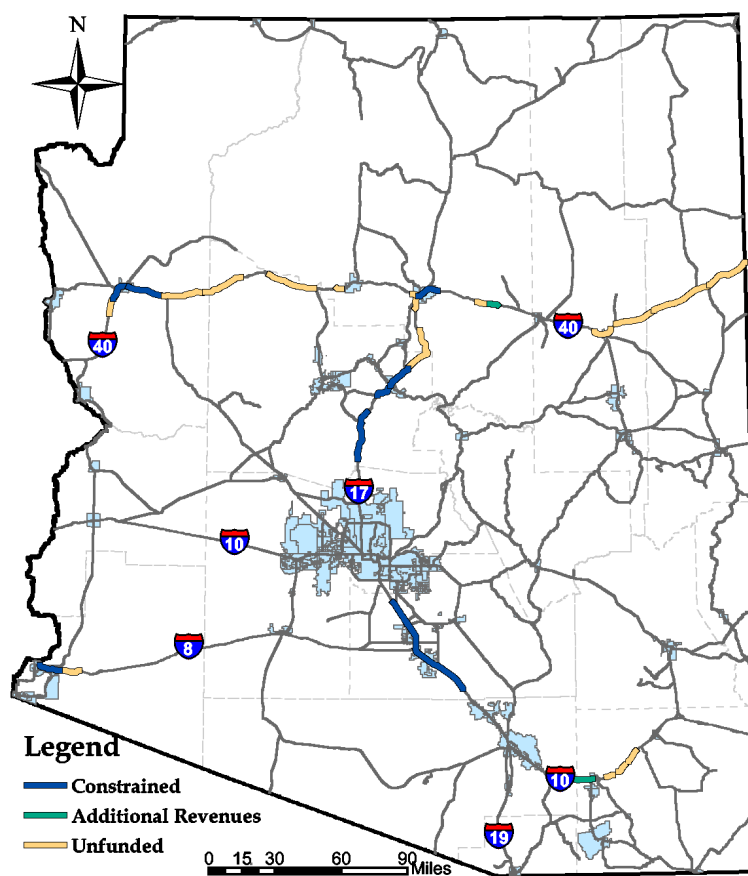
Figure ES.6 Interstate Project Locations for the Thirteen Other Counties.

Figure ES.7 presents the location of NHS projects in the 13 other counties.

Figure ES.7 NHS Project Locations for the Thirteen Other Counties

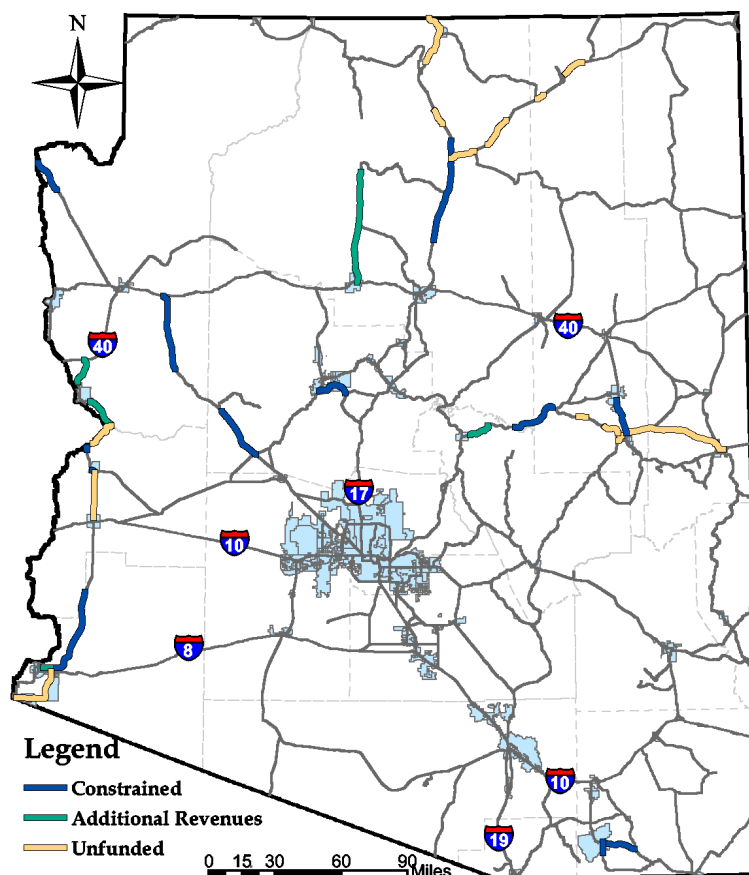


Figure ES.8 presents the location of projects off the NHS in the 13 other counties. Figure ES.9 presents the constrained scenario projects for Pima County. All projects identified in Pima County were fundable under the MoveAZ plan constrained scenario, so these are presented together.

In Maricopa County, the State Transportation Board has incorporated the MAG Regional Transportation Plan (RTP) into MoveAZ. The state highway projects recommended in the MAG RTP are shown in Figure ES.10. These projects will be funded by a combination of Federal, state, and regional sources. A complete list of project bundles for all regions can be found in Chapter 6 of the final MoveAZ plan. Detailed information about these project bundles (i.e., the specific project elements) is available in Appendix F.

Figure ES.8 Non-NHS Projects for the Thirteen Other Counties

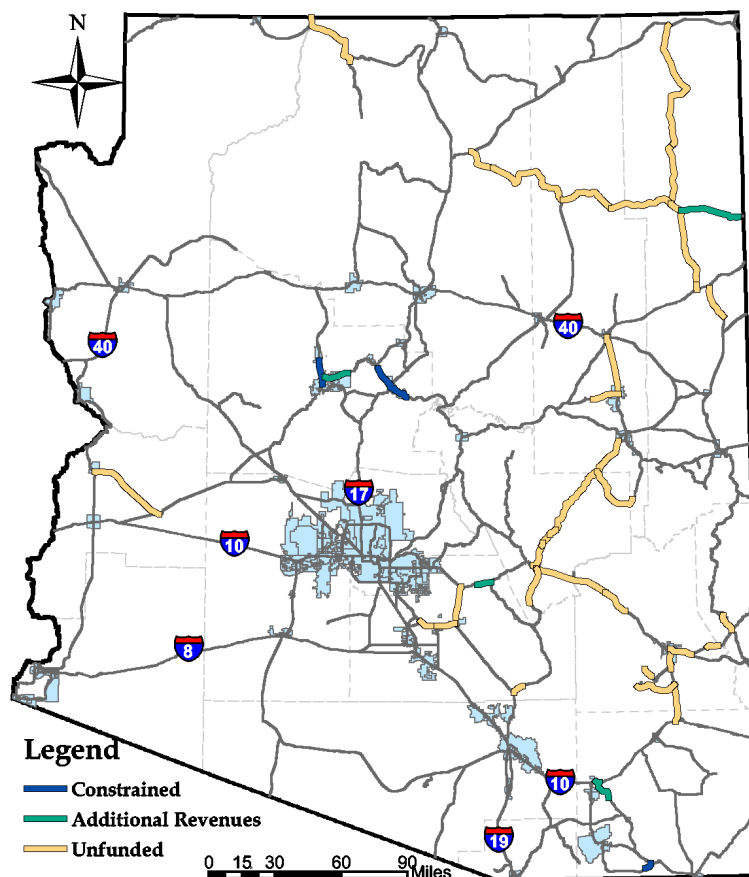


Figure ES.9 Pima County Project Locations for the Constrained Scenario

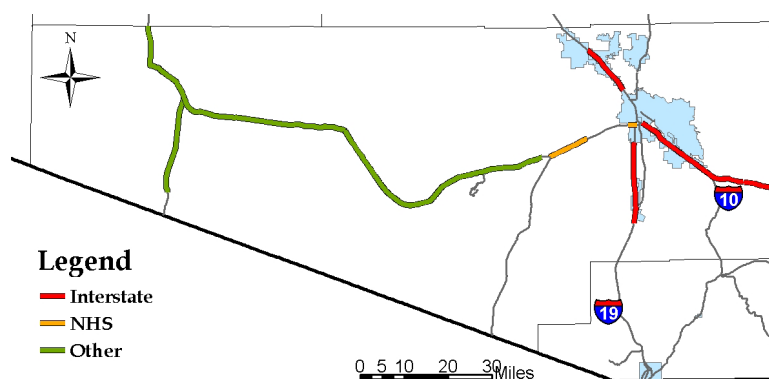
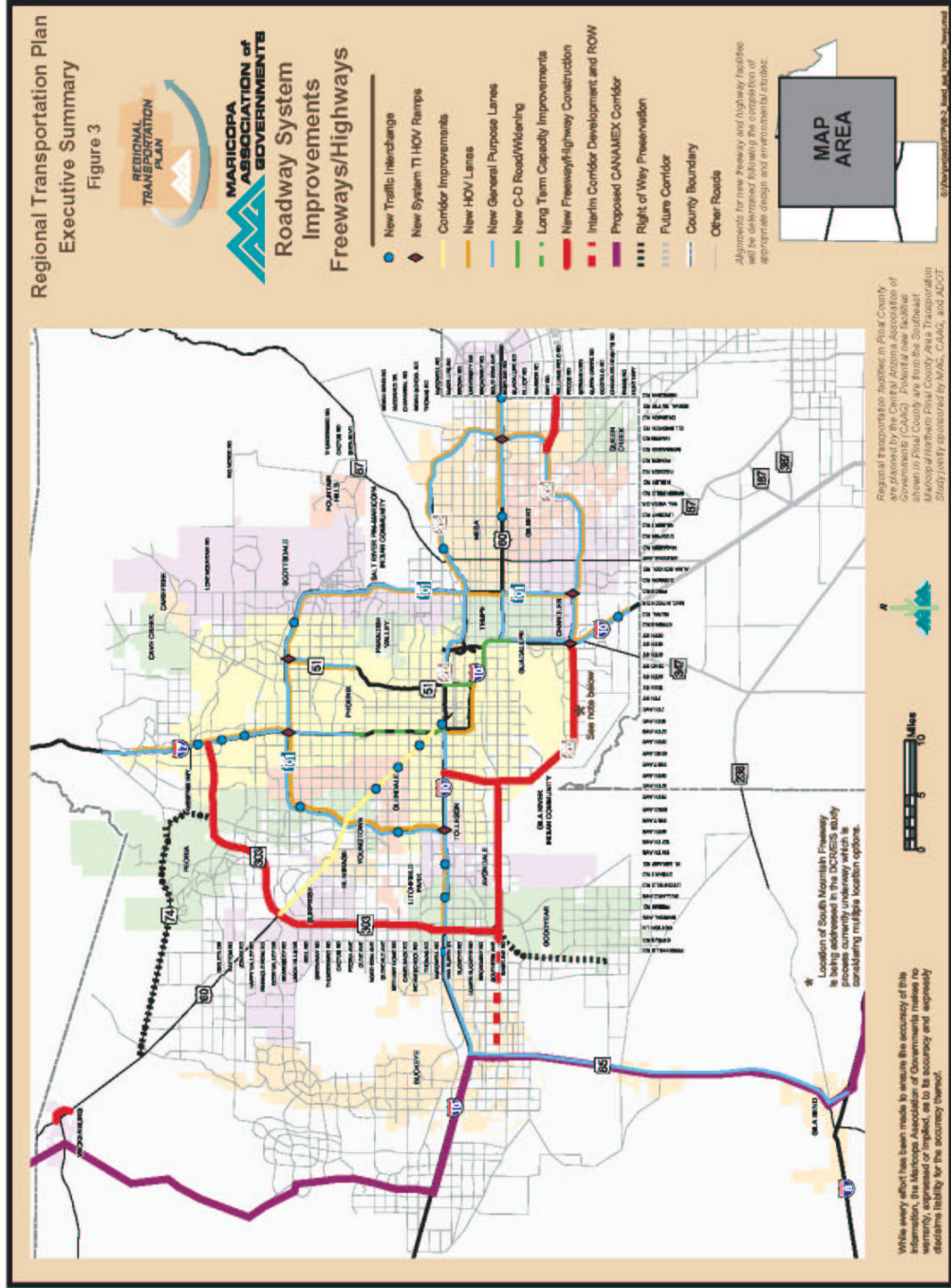


Figure ES.10 Maricopa County Projects Identified in the MAG RTP.

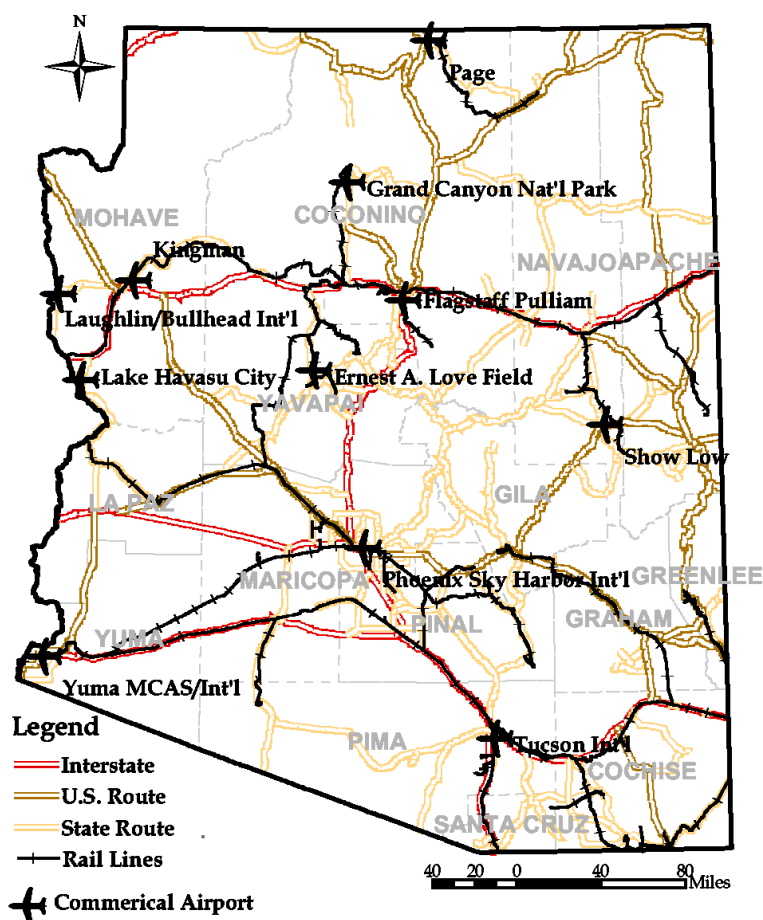


Source: Adapted from Maricopa Association of Governments' Regional Transportation Plan, 2003. Includes projects funded from Federal, state, and regional sources.

■ ES.4 Transportation Modes

As a multimodal long-range transportation plan, MoveAZ addresses six modes of personal travel in Arizona – highway, rail, transit, air, bicycling, and pedestrian – and four modes of freight transportation – truck, rail, air, and pipeline. Chapters 7 and 8 of the final MoveAZ plan provide detail on the extent of each the mode in Arizona, including location of facilities, types of systems, and other pertinent information; the demand for travel or utilization of the mode; and the role of ADOT in providing funding, operations, research, and other support for the mode. Figure ES.11 identifies the locations of Arizona’s highways, railroads, and airports with commercial service. Chapter 7 of the final MoveAZ plan provides additional information about each of these modes, as well as transit and bicycle/pedestrian modes.

Figure ES.11 Arizona’s Highway, Rail, and Air Transportation System



Demand and Utilization of Transportation Modes

MoveAZ included a detailed assessment of the total travel that takes place on Arizona's transportation modes both for current conditions (2002) and in the future (2025). Table ES.6 provides a summary of the total demand or utilization of each of these modes. Results of these analyses by county are shown in Chapter 7 of the final MoveAZ plan.

Table ES.6 Demand/Utilization of Transportation Modes

Mode	Metric	Demand/Utilization	
		2002	2025
Road	Vehicle Miles of Travel (VMT)	150,000,000	276,000,000
Rail	Daily boardings	207	409
Transit			
Intercity Bus	Daily boardings	670	910
Urban Transit	Daily boardings	271,000	429,000
Rural Bus	Daily boardings	4,100	7,400
Aviation	Daily enplanements	47,600	104,100
Bicycle	Daily trips	310,300	501,100
Pedestrian	Daily trips	976,400	1,597,500

ADOT's Role in Providing Transportation

ADOT has an important role to play in each transportation mode. Though these roles vary from one mode to another, ADOT is committed to working with the providers of each mode – whether highway, transit, rail, bicycle, or other – to ensure that each works within the state transportation system. Some of the key roles that ADOT plays in each mode include:

- **Highways** – ADOT is responsible for developing and maintaining the highway system and works with regional and local jurisdictions across the State to identify needs and the projects to address them.
- **Rail** – ADOT does not build or operate rail systems in Arizona, but works with rail providers, including Amtrak, other passenger rail companies, and freight rail operators. ADOT has supported the rail system by sponsoring key studies, such as a high-speed rail feasibility study, integrating rail issues into planning studies, evaluating the

preservation of abandoned rail right of way for possible future uses, and examining the need to improve and/or upgrade highway grade crossings.

- **Transit** – ADOT administers Federally-funded transit grant programs that provide demand responsive and targeted service to the elderly and persons with disabilities (Section 5310) and to rural public transportation organizations (Section 5311). These programs provide \$13.5 million, \$6.5 million of which ADOT flexes from other funding sources to help maintain these services in the State. ADOT planning studies include an examination of transit issues and ADOT will sponsor several studies to specifically examine rural transit issues through the ADOT Public Transportation Division, which was formed in 2004.
- **Aviation** – ADOT owns the Grand Canyon Airport. The ADOT Aeronautics division is responsible for planning activities related to aviation. Excise taxes on airplane fuel, aircraft license and registration fees, and other fees are collected in an Aviation fund that is used for a variety of aviation projects across the State.
- **Bicycle/pedestrian** – Though ADOT does not provide specific facilities for cyclists or pedestrians on state highways, many of the improvements that ADOT makes can benefit these road users as well. ADOT also supports bicycle and pedestrian travel through planning studies, such as the recent State Bicycle/Pedestrian Plan.

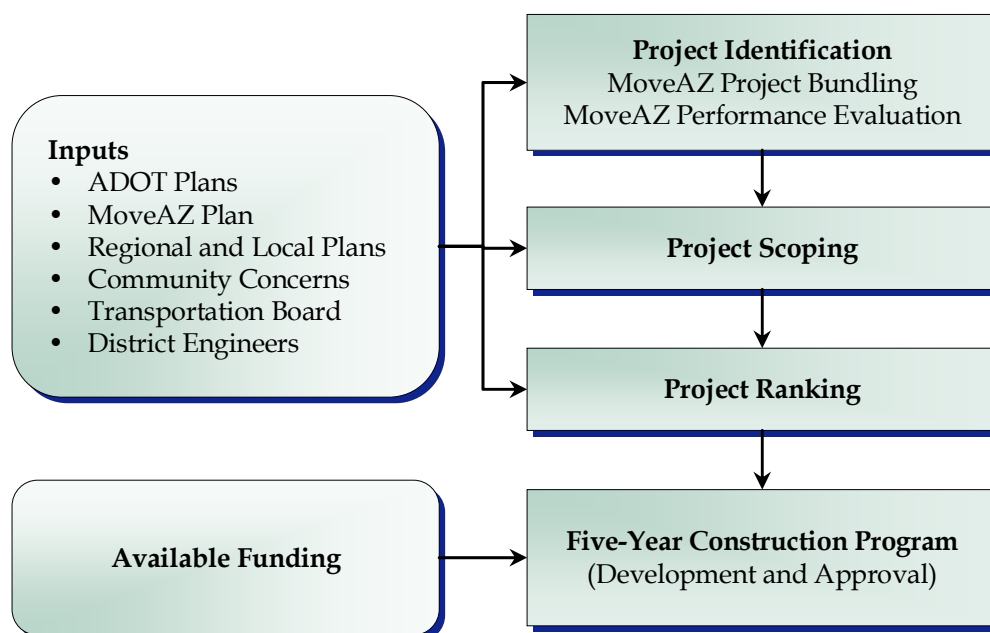
■ ES.5 Planning to Programming

In addition to providing ADOT with tools to analyze the performance impacts of capital transportation projects, MoveAZ also addresses the relationship between these analyses and the process ADOT uses to identify specific transportation projects for funding in the *Five-Year Transportation Facilities Capital Program* (Five-Year Program). The ADOT programming process is designed to fund projects that will help ADOT meet its responsibilities to maintain and expand the transportation system in Arizona. These responsibilities include a wide variety of activities, such as repaving highways, providing funding to special needs transit operators, developing ADOT construction capabilities, and expanding capacity on the highway system.

MoveAZ will provide information for use in developing the five-year program, primarily in the area of system improvements that address capital expansion of the transportation system. Other projects, such as pavement maintenance, safety, and others, are delivered through specific ADOT subprograms that have existing tools to identify expected improvements for specific projects. For major capital projects, MoveAZ provides tools to identify these performance improvements. As shown in Figure ES.12, MoveAZ is intended to supplement the existing programming process by providing additional information to ADOT and the State Transportation Board to help with decision-making. As such, MoveAZ provides several processes that ADOT will use for planning and programming in the future:

- A set of decision rules used to bundle projects into corridor-level projects that can be evaluated over a long timeframe, such as the 20-year MoveAZ plan;
- An evaluation process that estimates the performance benefits of capital transportation projects; and
- Detailed information about travel demand, utilization, and other data that will support these evaluations in the future.

Figure ES.12 ADOT Updated Priority Programming Process



Detailed information about the relationship between planning and programming can be found in Chapter 9 of the final MoveAZ plan.